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## School of Medicine

# Are you Preparing Yourself for Greatness?



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Co-Director, UCLA-CTSI Community Engagement and Research Program



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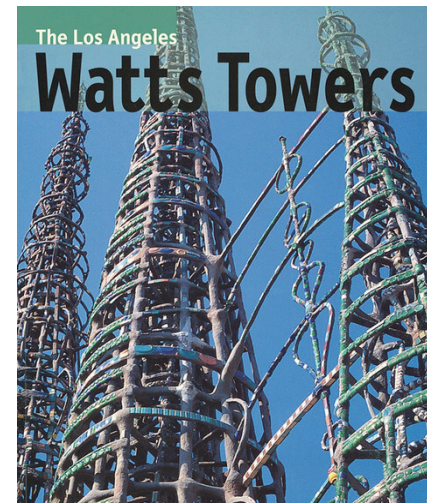
What is **Greatness**?

What is a **Successful** Life?

Do you have the **Courage** to  
be the **Greatest** you can be?

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**Success is the peace of mind that comes from knowing *you did your best* to become the best YOU are capable of becoming.**

**- John Wooden**



# Tools for Success

- **Preparation**
  1. **Matching Your Unique Skills with your Passion**
  2. **Building Expertise**
  3. **Distinguishing Yourself**
- **Courage**



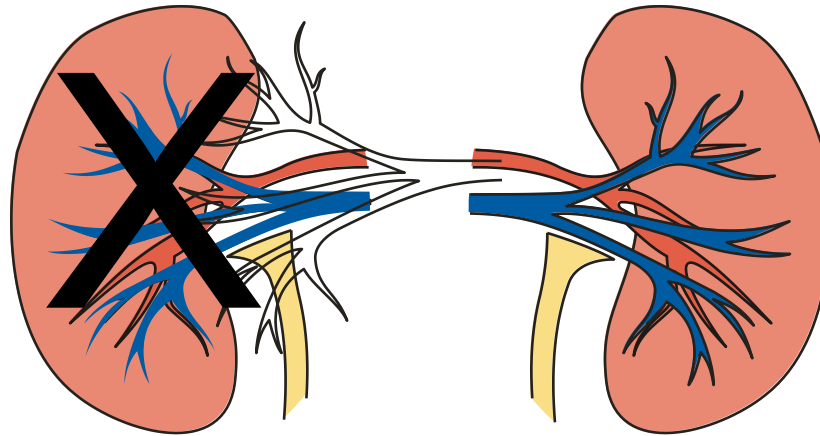
## What I do

- Kidney Specialist
- Researcher



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# Kidney Disease



- Usually silent
- Often caused by diabetes or high blood pressure
- Affects over 25 Million Americans
- Can lead to a person needing dialysis or a kidney transplant
- **I do research to try to stop kidney disease**





# What is Dialysis? – A Life Saving Procedure for a Person with Kidney Failure



**I do research to try to make dialysis treatments better**



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# Kidney Transplant: A Life Saving Procedure

## The Nation's largest ever “Transplant Chain: 60 Lives, 30 Kidneys, All Linked



**I do research to help more people  
with kidney failure get a transplant**



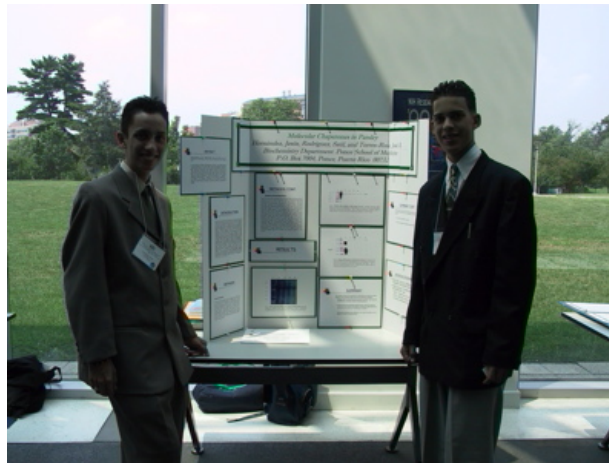
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New York Times: 60 Lives, 30 Kidneys, All Linked February 18th, 2012



# What is Research?

A systematic investigation designed to develop or contribute to knowledge.



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# The Power of Observation & Inquisitiveness

Without skepticism, there are no questions

With no questions, there is no research

**With no research, there are no answers**

-Dalai Lama





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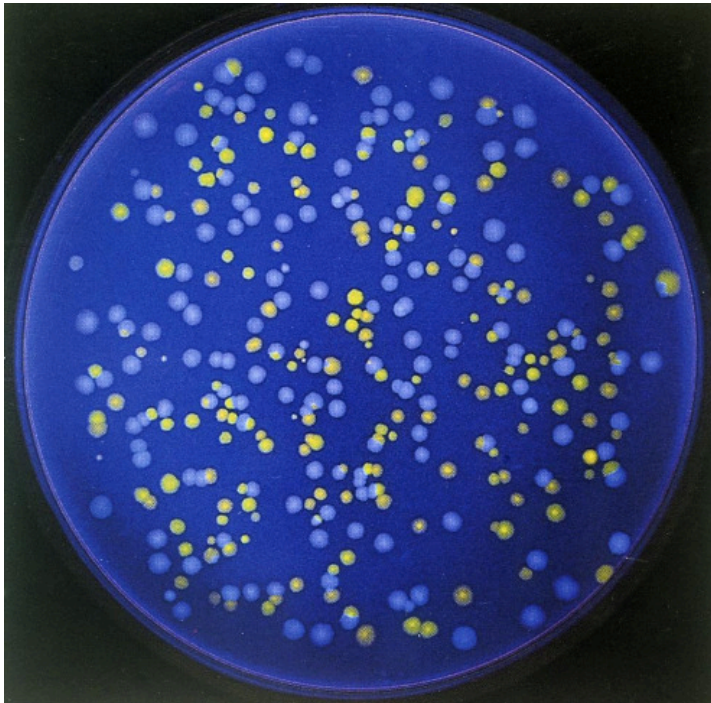
Isidor Rabi - Nobel laureate in physics who died in 1988 was once asked, "Why did you become a scientist,?"

And he said: "My mother made me a scientist without ever intending it. Every other mother would ask her child after school: 'So? Did you learn anything today?'

But not my mother asked me a different question. 'Izzy,' she would say, '**did you ask a good question today?**' That difference - asking good questions -made me become a scientist!"



# Alexander Fleming & Penicillin



Penicillin  
producing  
mold



# Seatbelts and Airbags



# Research: What Questions Can we Learn from Life



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Despite not making urine for 5–6 months of hibernation, the bear does not develop kidney failure.

It has developed unique mechanisms to heal wounds and prevent muscle wasting, bone loss, and atherosclerosis.



	Human	Hibernating bears
Kidney	Kidney Failure	No kidney failure
Circulation	Heart failure/Blood clots	No heart failure or blood clots
Muscle	Dramatically reduced muscle mass	Reduced ~10–15%
Bone	Bones weaken	Bones don't weaken
Skin	Bed sores	No bed sores



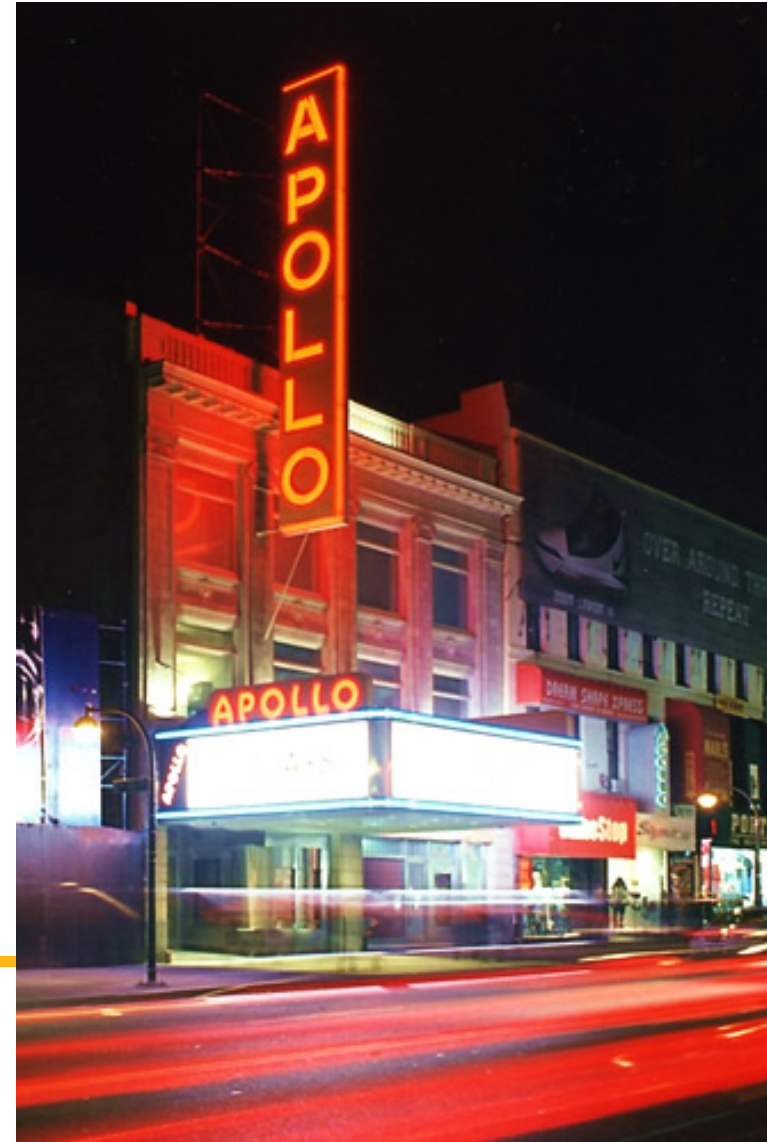
# Biomedical Science and Health Professional Careers

- Sacrifice
- Strategy
- Work ethic
- Preparation
- **Passion**



# Biomedical Science and Health Professional Careers

- Constant Practice
- Constant Evaluation
- Constant Challenges
- Opportunity to go further – to become the best YOU can be





## WHY Do Biomedical Research as a Student?

- Exposure to sciences careers
- Enhance college or graduate school readiness and application
- Enhance confidence
- Experience a structured approach to inquiry and how to work with a team



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# Greatness – The Courage to Express Compassion and Fairness



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Excerpt from Frans de Waal's TED Talk

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# WHY Should Students do Biomedical Research?

**Because You Can !!!**

- A chance to make a big difference to the health of one's community
- A career option that is available
- A chance to make the world a better place



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# Remember the Tools for Success

## Preparation

1. Matching Your Unique Skills with your Passion
2. Building Expertise
3. Distinguishing Yourself

## Courage to be Great



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**Thank You**

**&**

**Wishing each of you the Courage to be  
the Greatest YOU can be?**



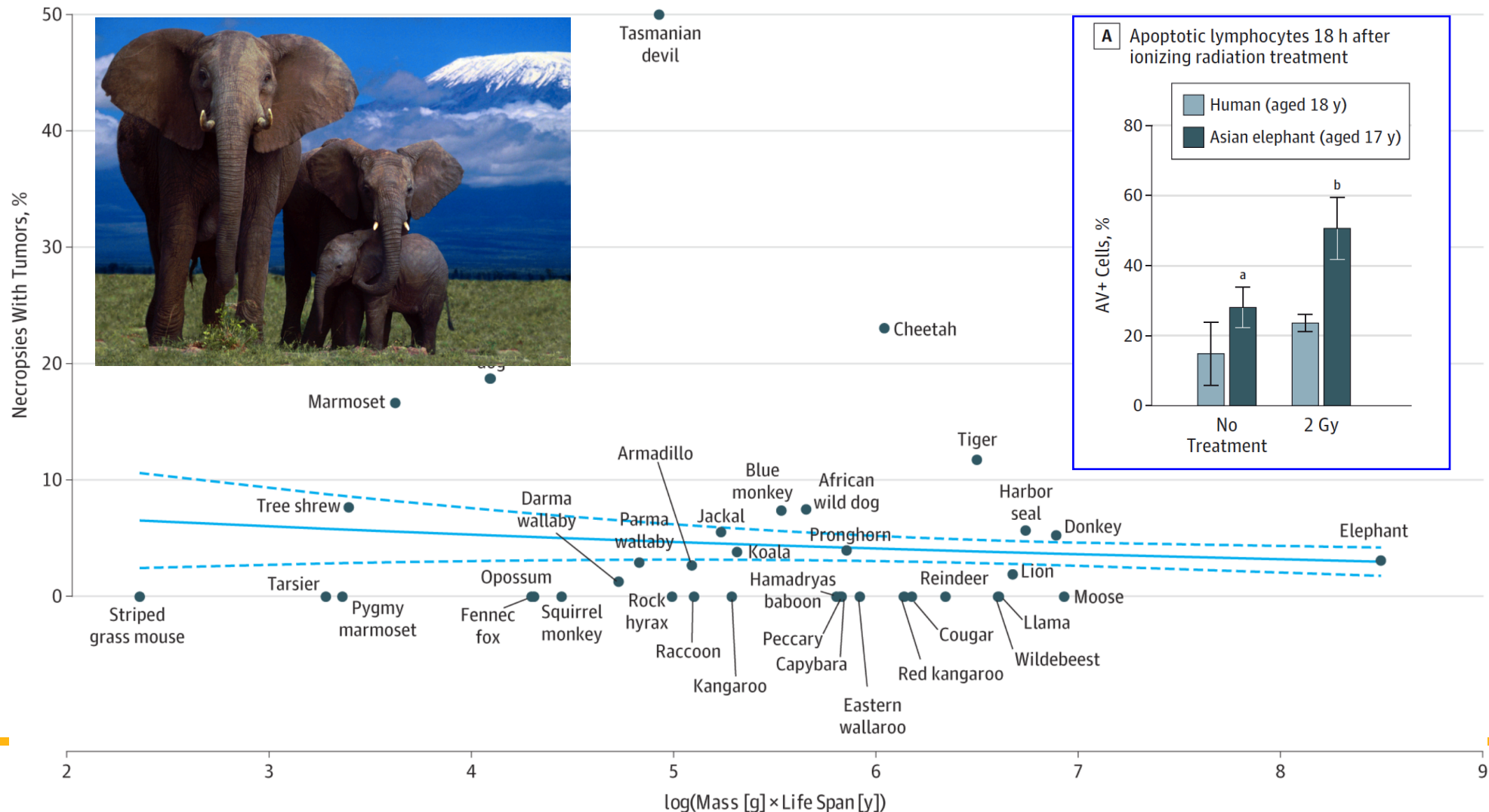
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# Cancer Incidence Across Species by Body Size and Life Span





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With no questions, there is no research

With no research, there are no answers

-Dalai Lama



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# What Answers can we learn from Life

The naked mole-rat displays exceptional longevity, with a maximum lifespan exceeding 30 years<sup>1–3</sup>. This is the longest reported lifespan for a rodent species and especially striking considering the small body mass of the naked mole-rat. In comparison, a similarly sized house mouse has a maximum lifespan of 4 years<sup>4,5</sup>. In addition to their longevity, naked mole-rats show an unusual resistance to cancer. Multi-year observations of large naked mole-rat colonies did not detect a single incidence of cancer<sup>2,6</sup>.





# Key Reasons People Don't Succeed

- Scared to Fail
- Scared to Succeed
- Let others define what you can become



Do you have the Courage to be the Greatest you can be?



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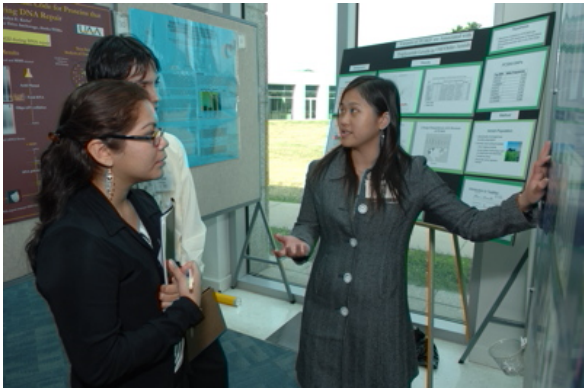
Despite prolonged immobilization and anuria during 5–6 months of hibernation, the black bear (*Ursus americanus*) has developed unique mechanisms to heal wounds and prevent muscle wasting, bone loss, and atherosclerosis.



6 months of bed rest	Human	Hibernating bears
Circulation	Heart failure/Blood clots	No heart failure or blood clots
Muscle	Dramatic reduction in muscle mass	Reduced ~10–15%
Bone	Severe disuse osteoporosis Hypercalcemia	None
Metabolism	Carbohydrate, protein, & fat breakdown	Primarily fat breakdown
Skin	Bed sores	No bed sores



# Why do Research?



## Because You Can



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“If you don't take care of your body,  
where will you live?”



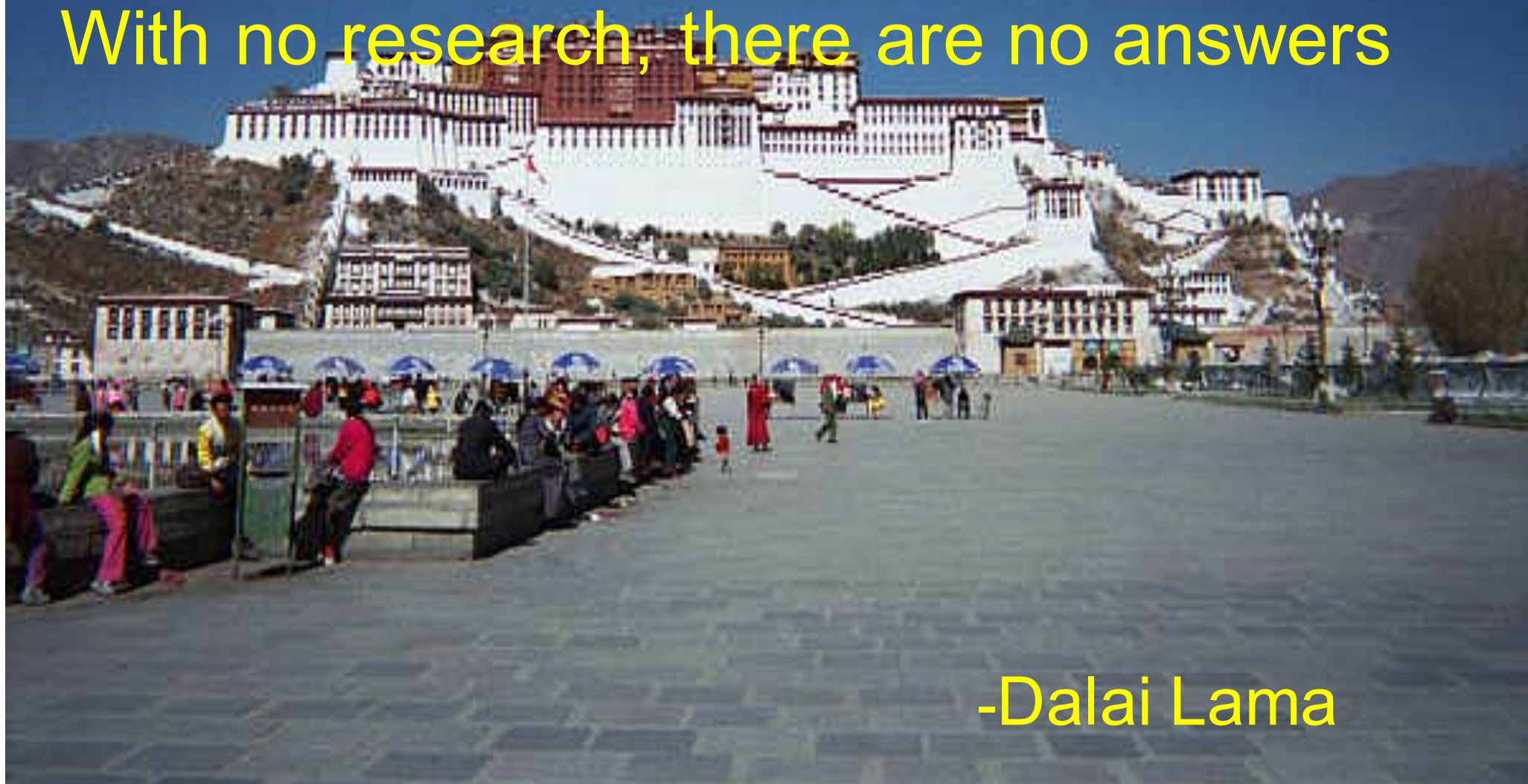
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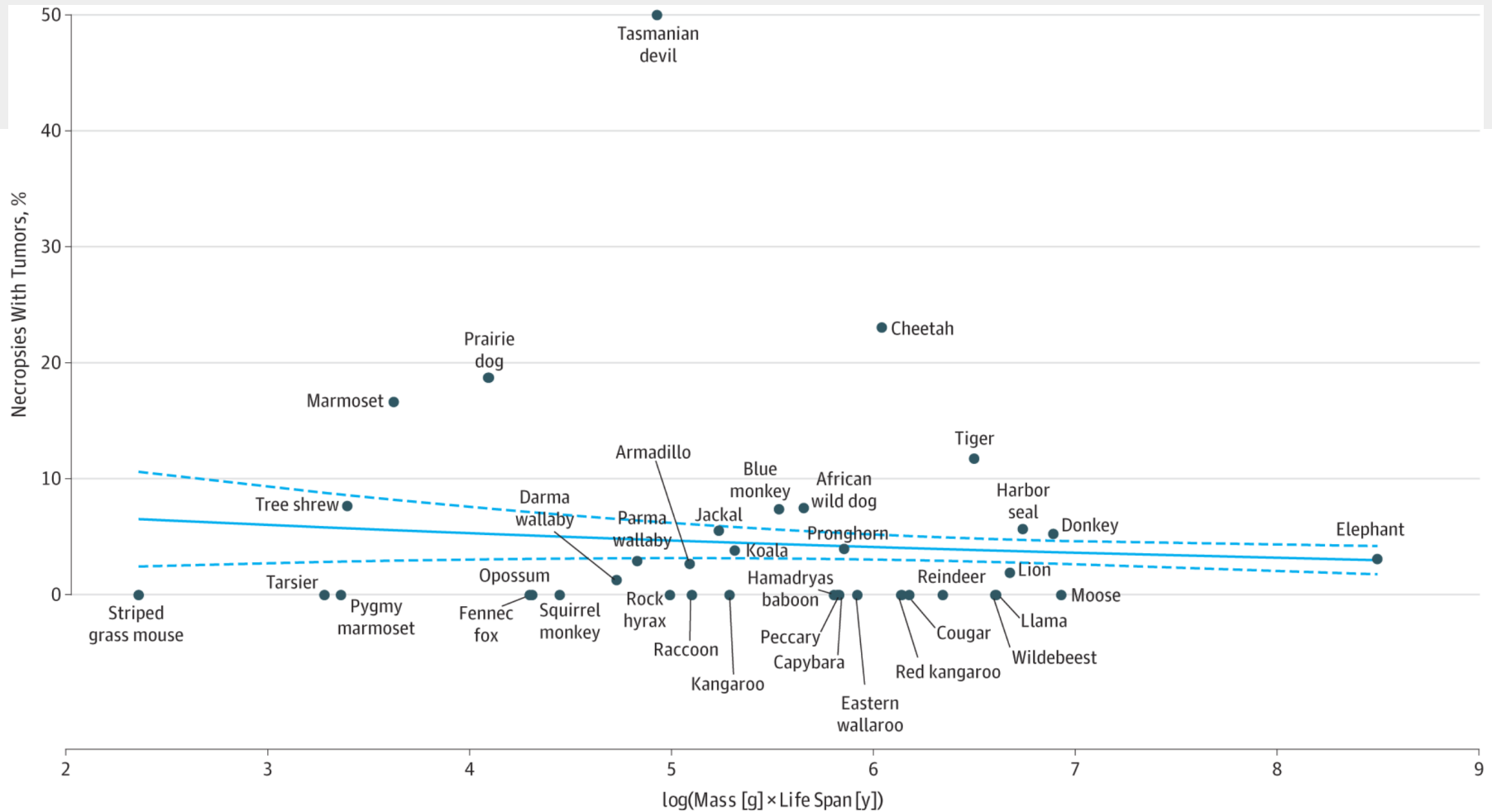
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## WHY Do Biomedical Research as a Student?

- Exposure to sciences careers
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# One Strategy for Students is to Get Involved in Research?



Why Should Students do Research?

**Because You Can!!!**



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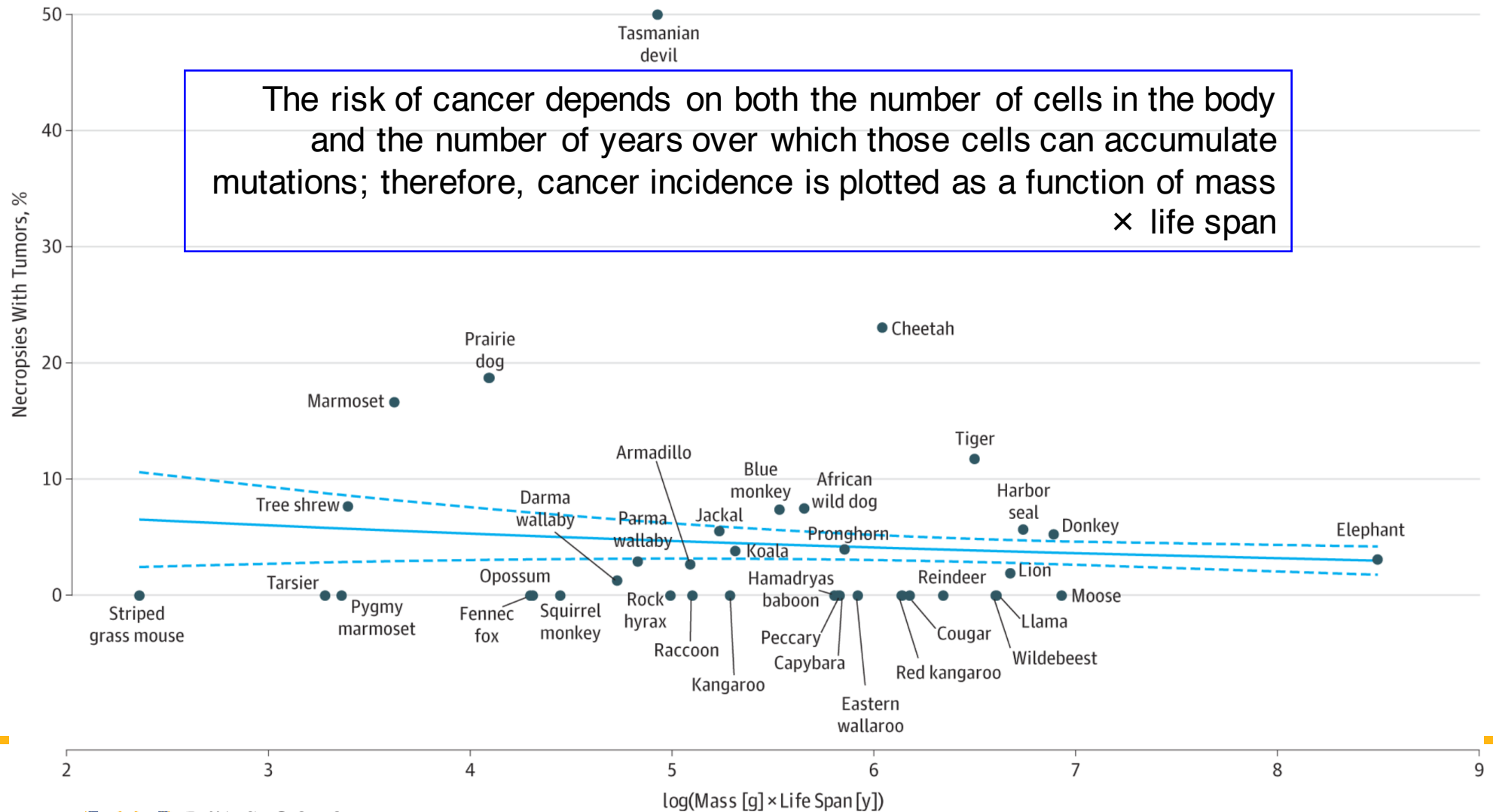


# WHAT is Biomedical Research?

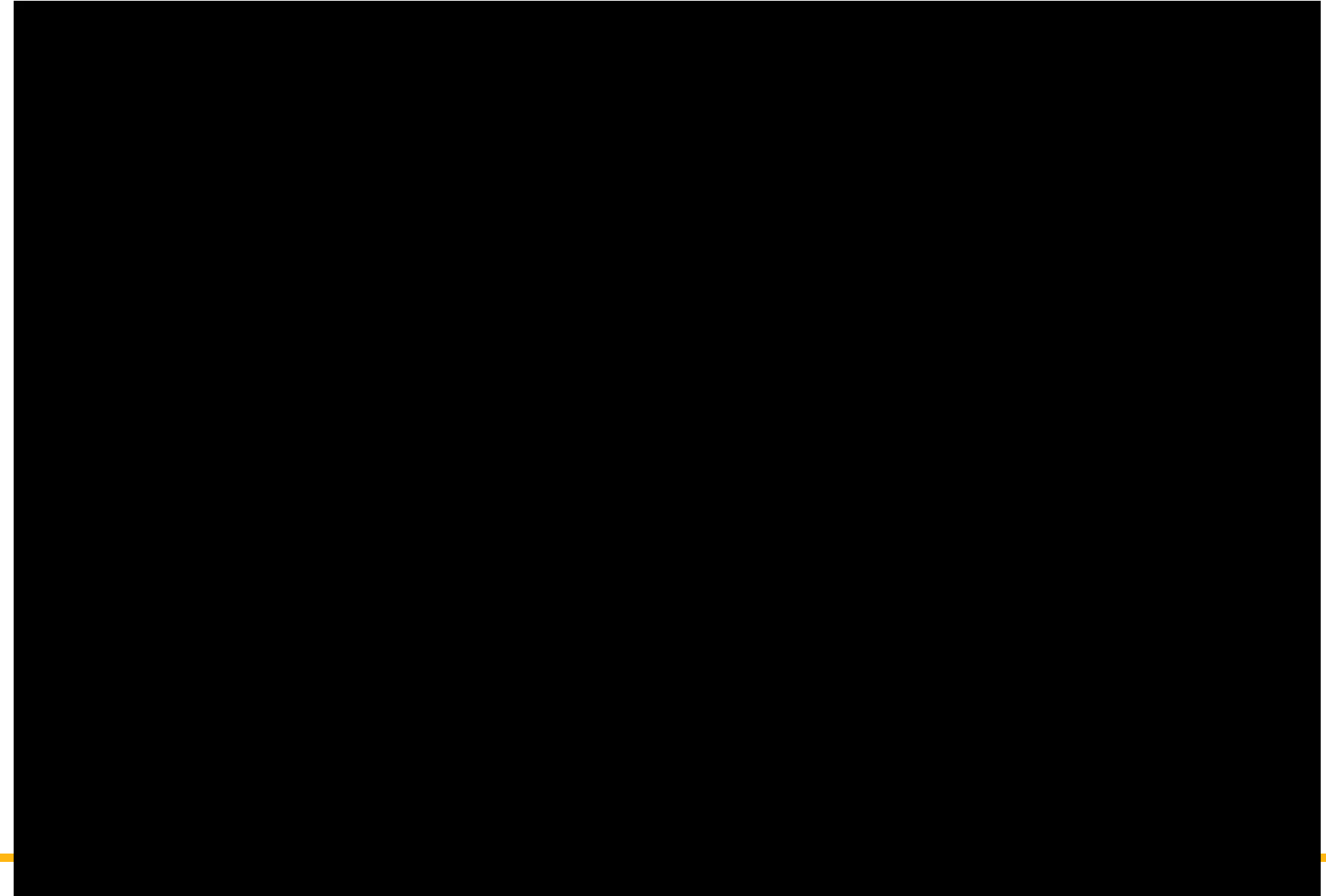
- A systematic investigation designed to develop or contribute to knowledge in the area of biological, medical and related sciences



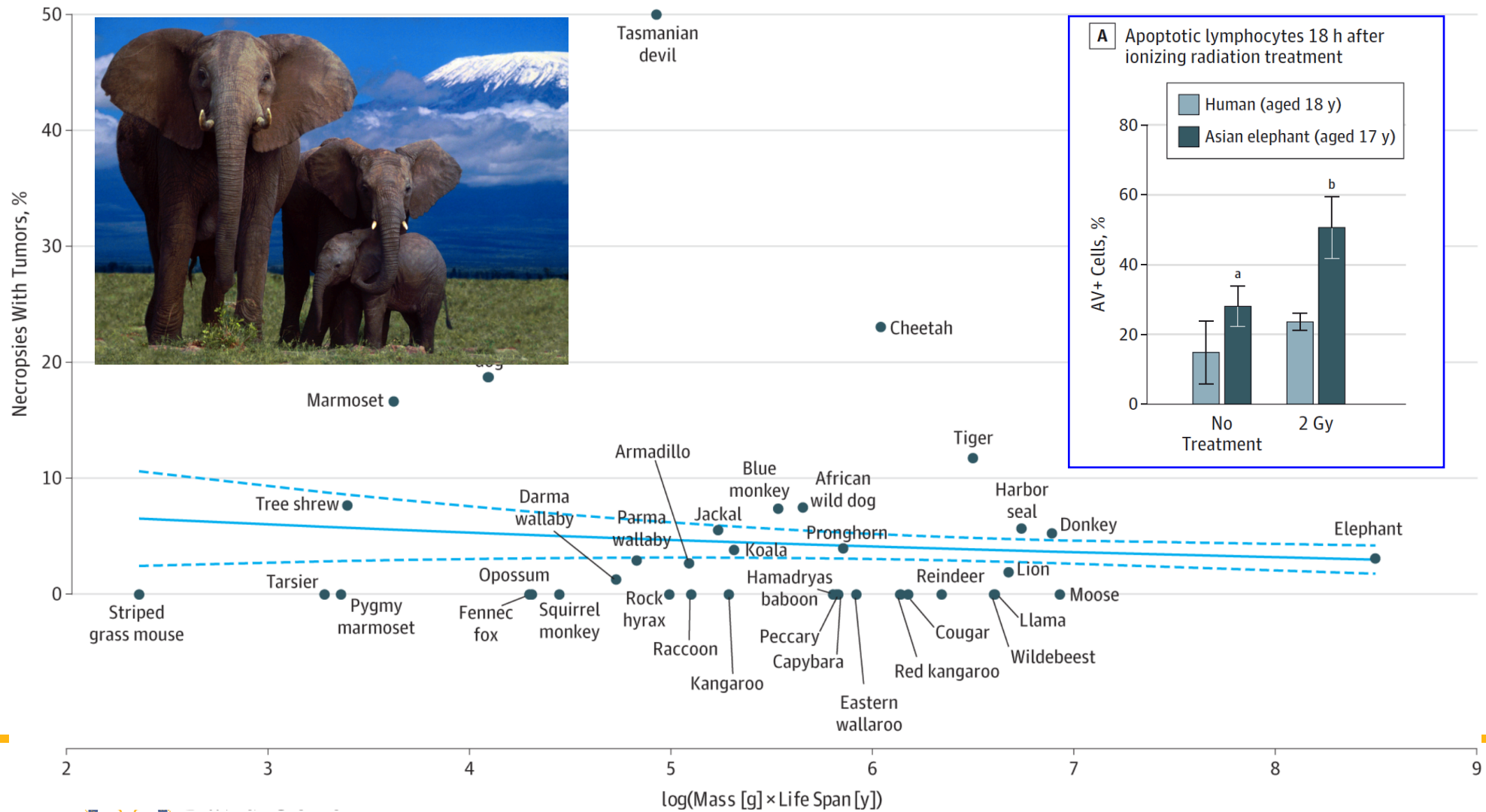
The risk of cancer depends on both the number of cells in the body and the number of years over which those cells can accumulate mutations; therefore, cancer incidence is plotted as a function of mass  $\times$  life span



# Research: What Questions Can we Learn from Life



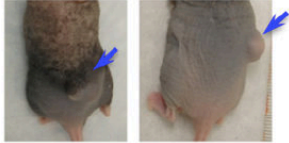
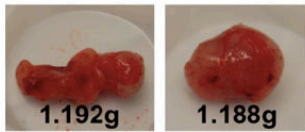

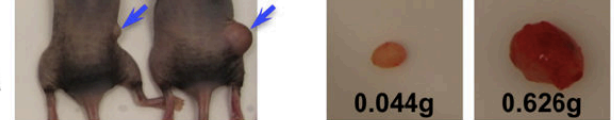
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- The naked mole-rat live  $>30$  years, while a similarly sized house mouse lives about 4 years.
- The naked mole-rats show an unusual resistance to cancer.
- Naked mole-rat fibroblast cells secrete an extremely high molecular weight hyaluronan (HA), which is  $>5x$  larger than human or mouse HA

**b**

	Mouse xenografts	Tumors	Tumor/ Xenografts
MSF			6/6
NMR SF	Control	No tumors	0/9
	Hyal2		3/4
	HAS2 shRNA		3/4



**“Break from what you know,  
and you will know much more.”**



**— Ip Man**

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# Do you have the Courage to be Greatest you can be?



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**Success is peace of mind which is a direct result of self-satisfaction in knowing you did your best to become the best you are capable of becoming.**



***John  
Wooden***